

What is claimed is:

1. A high frequency filter, comprising:

a filter case having side walls, a generally open proximal end and a generally closed distal end;

a partition within said filter case for separating the inside of said
5 filter case into at least a first cavity and a second cavity, said partition having an aperture for coupling the first and second cavities;

a first helical resonator coil disposed inside the first cavity of said filter case extending from the proximal end towards the distal end of said filter case;

10 a second helical resonator coil disposed inside the second cavity of said filter case extending from the proximal end towards the distal end of said filter case;

a first tap coil connectable in series with said first helical resonator coil at the proximal end of said filter case, the series connection between said
15 first helical resonator coil and said first tap coil providing an input tap for coupling electrical signals to the high frequency filter;

a second tap coil connectable in series with said second helical resonator coil at the proximal end of said filter case, the series connection between said second helical resonator coil and said second tap coil
20 providing an output tap for coupling electrical signals from the high frequency filter;

a removable tap housing for supporting said first tap coil at the proximal end of said filter case;

a mechanical fitting on said removable tap housing for releasable
25 engagement with the proximal end of said filter case securing an electrical connection interface for electrically connecting said first tap coil with said first helical resonator coil at the series connection between said first tap coil and said first helical resonator.

2. A high frequency filter as recited in claim 1, wherein said mechanical fitting comprises a nub extending from said removable tap housing.

3. A high frequency filter as recited in claim 2, wherein said filter case comprises a detent at the proximal end for receiving said nub extending from said removable tap housing for releasable engagement with said filter case.

4. A high frequency filter as recited in claim 1, wherein said tap housing encases said first tap coil for mounting said first tap coil in the vicinity of said first helical resonator coil.

5. A high frequency filter as recited in claim 4, comprising a kit including a multiplicity of said first tap coils encased in a multiplicity of said tap housings for varying signal coupling characteristics between said first tap coil and said first helical resonator coil.

6. A high frequency filter as recited in claim 4, wherein the electrical connection interface provided with said tap housing comprises a contact leg electrical coupling for circuit connections to the high frequency filter.

7. A high frequency filter as recited in claim 6, wherein said electrical coupling comprises surface mount connector pads.

8. A high frequency filter as recited in claim 4, wherein said tap housing comprises a potting material for encasing said first tap coil.

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9. A high frequency filter as recited in claim 4, wherein said tap housing comprises a plastic material for encasing said first tap coil.

10. A high frequency filter as recited in claim 1, wherein said tap housing comprises means for electrically connecting said first tap coil with said first helical resonator coil at the series connection between said first tap coil and said first helical resonator.

11. A high frequency filter as recited in claim 1, wherein said tap housing comprises a metallic coupling for electrically connecting said first tap coil with said first helical resonator coil at the series connection between said first tap coil and said first helical resonator.

12. A high frequency filter as recited in claim 1, comprising a second removable tap housing for mounting said second tap coil at the proximal end of said filter case for positioning said second tap coil in the vicinity of said second helical resonator coil.

13. A high frequency filter as recited in claim 1, comprising a first tuning screw at the distal end of said filter case at the first cavity and a second tuning screw at the distal end of said filter case at the second cavity respectively for tuning said first and second helical resonator coils.

14. A method of specifying the assembly of a high frequency filter, comprising:

accessing an electrical design program via the internet for generating characteristic information from helical filter component data;

providing a first coil and a second coil for resonating electrical signals in accordance with the helical filter component data;

enclosing the first and the second coils between a generally open proximal end and a generally closed distal end;

partitioning the enclosed first and second coils into a first cavity and a second cavity respectively;

disposing the first coil inside the first cavity extending from the proximal end towards the distal end;

disposing the second coil inside the second cavity extending from the proximal end towards the distal end of the enclosed coils;

providing a signal coupler for coupling electrical signals into the first coil;

encasing the signal coupler in a coupler housing for removably positioning the signal coupler in the vicinity of the first coil;

providing mechanical fitting on the coupler housing for releasable engagement with the proximal end for securing an electrical connection thereto; and

supporting said coupler housing at the proximal end.

15. A method as recited in claim 14, wherein said partitioning step comprises providing a removable partition wall defining an aperture therein.

16. A method as recited in claim 15, wherein said partitioning step comprises providing said removable partition wall as a kit of multiple partition walls each having different sized apertures for varying signal coupling characteristics between the first cavity and the second cavity.

17. A method for specifying the assembly of electronic filter components, comprising:

accessing a high frequency filter design program via the internet for generating characteristic information from helical filter component data;

providing a first coil characteristic and a second coil characteristic for resonating electrical signals in accordance with the helical filter component data, the first and the second coils being enclosable between a generally open proximal end and a generally closed distal end;

defining a partitioning of the enclosed first and second coils into a first cavity and a second cavity respectively, for disposing the first coil inside the first cavity extending from the proximal end towards the distal end, and for disposing the second coil inside the second cavity extending from the proximal end towards the distal end of the enclosed coils; and

identifying a signal coupler for coupling electrical signals into the first coil, the signal coupler being supportable at the generally open proximal end.

18. A method as recited in claim 17, comprising making the signal coupler enclosable in an encasing as a coupler housing for removably positioning the signal coupler in the vicinity of the first coil.

19. A method as recited in claim 17, comprising tap coupling for coupling electrical signals into the first coil as the signal coupler.

20. A method as recited in claim 17, comprising loop coupling for coupling electrical signals into the first coil as the signal coupler.